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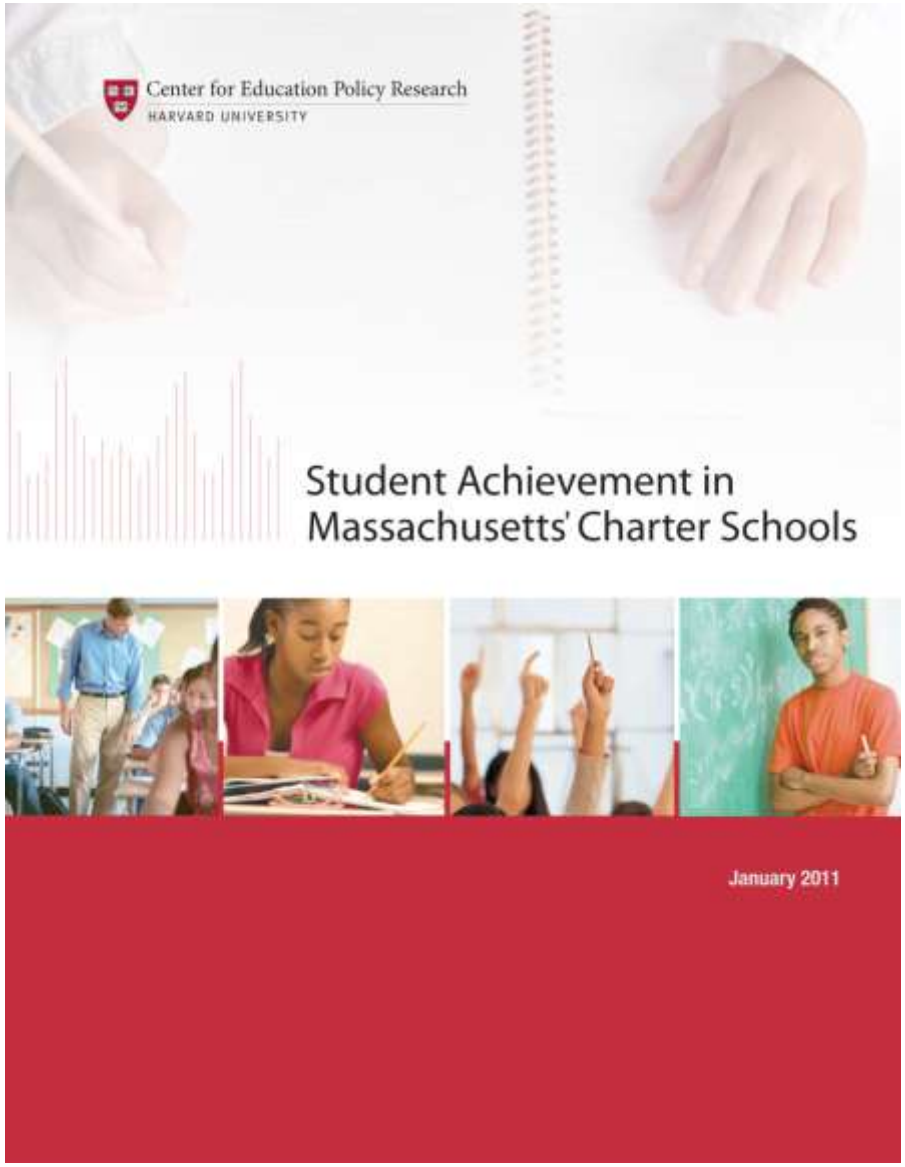


# Student Achievement in Massachusetts' Charter Schools

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# Background

- The last decade has seen dramatic growth in Massachusetts charter numbers and enrollment
- SY 2010: 16 Boston charters and 47 in the rest of the state, up from 39 statewide in 1999
- Charter expansion is limited by oft-debated budget and enrollment caps
  - Caps were raised in 2010, but only for "proven providers" located in districts scoring at the bottom of the MCAS distribution
- A key question in the debate over charter expansion is charter effectiveness

# Previous Work

- Our team previously estimated the effects of charter attendance on MCAS scores for schools in Boston and a school in Lynn
- These studies use charter admissions lotteries to produce strong evidence based an “apples-to-apples” comparisons
- The results show dramatic achievement gains for charter lottery winners
- At KIPP Lynn middle school, for example, each year of charter attendance raises ELA scores by .12σ and math scores by .35σ

# The Massachusetts Charter Landscape

- The Boston and Lynn public school systems are big-city districts, serving mostly minority populations
  - In our lottery sample, charters in urban districts emphasize instruction time and mostly subscribe to "No Excuses" organizational principles
- Today, we look at Massachusetts schools from nonurban as well as urban districts
  - Nonurban charters emphasize a range of approaches and philosophies (e.g. performing arts, expeditionary learning)
  - Nonurban charters serve far fewer minority and low-income (subsidized lunch) students

# Identifying Causal Effects: Two Ways

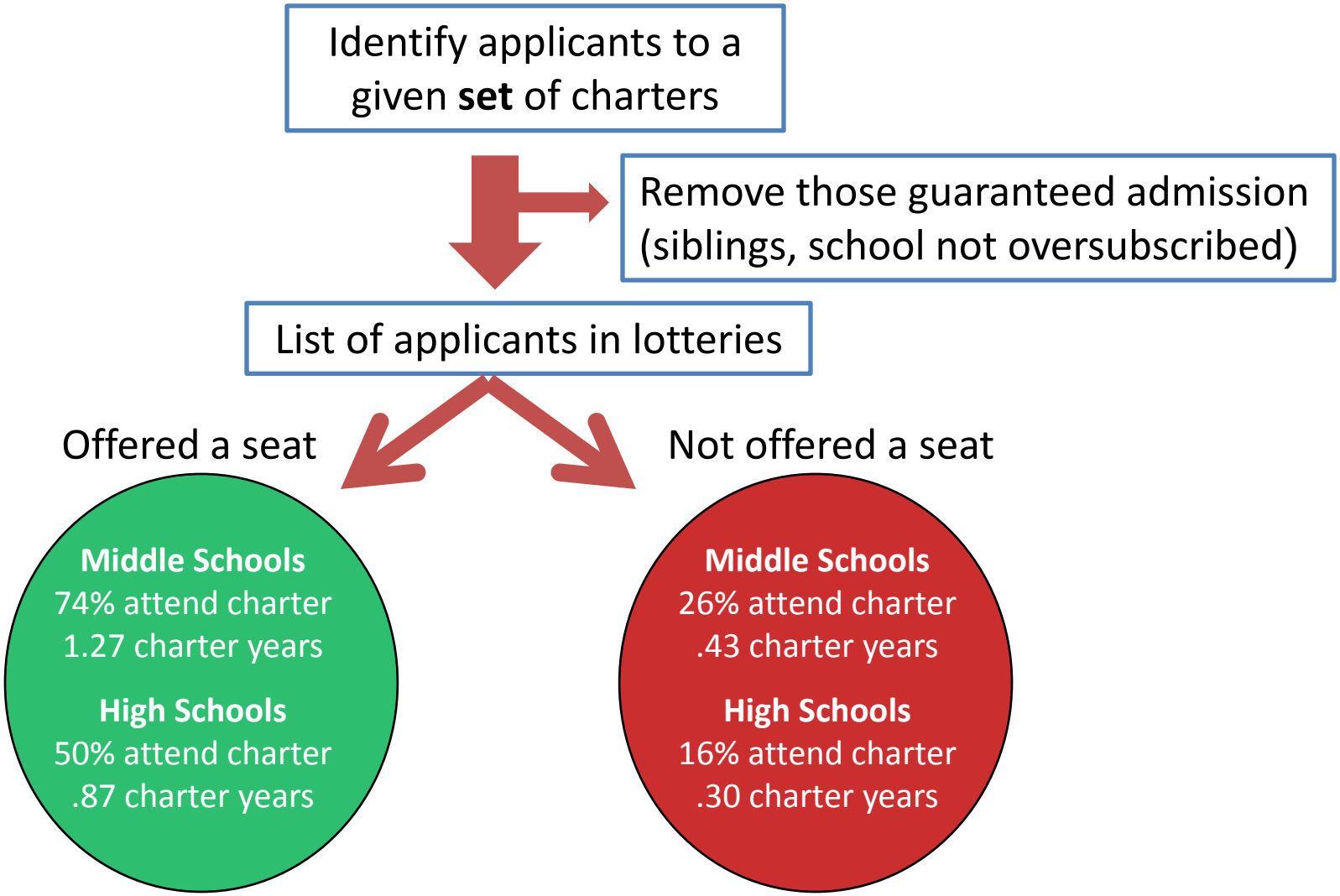
## I. Lottery Study

- Includes oversubscribed charter schools with good lottery records
- Random assignment eliminates selection bias (assuring "apples to apples" comparisons)

## II. Observational Study

- Includes all operating charters in the state
- Demographic and test score variables control for student background
- Unobserved differences between charter students and other students may remain

# Lottery Study Details



# Lottery Study Details

Impact of a **Charter Offer (.20σ)** =

Offered a seat

**Average Score: .11**

−

Not offered a seat

**Average Score: -.09**

Middle school math scores (standardized) for charter lottery applicants.

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# Lottery Study Details

Impact of a **Year in Charter (.24σ=.2/.8)** =

| | Offered a seat | | Not offered a seat |
|---|---|---|---|
| | Average Score = .11 | − | Average Score = -.09 |
| | Average Years in Charter: 1.27 | − | Average Years in Charter: .43 |

Middle school math scores (standardized) and years in charter for charter lottery applicants.

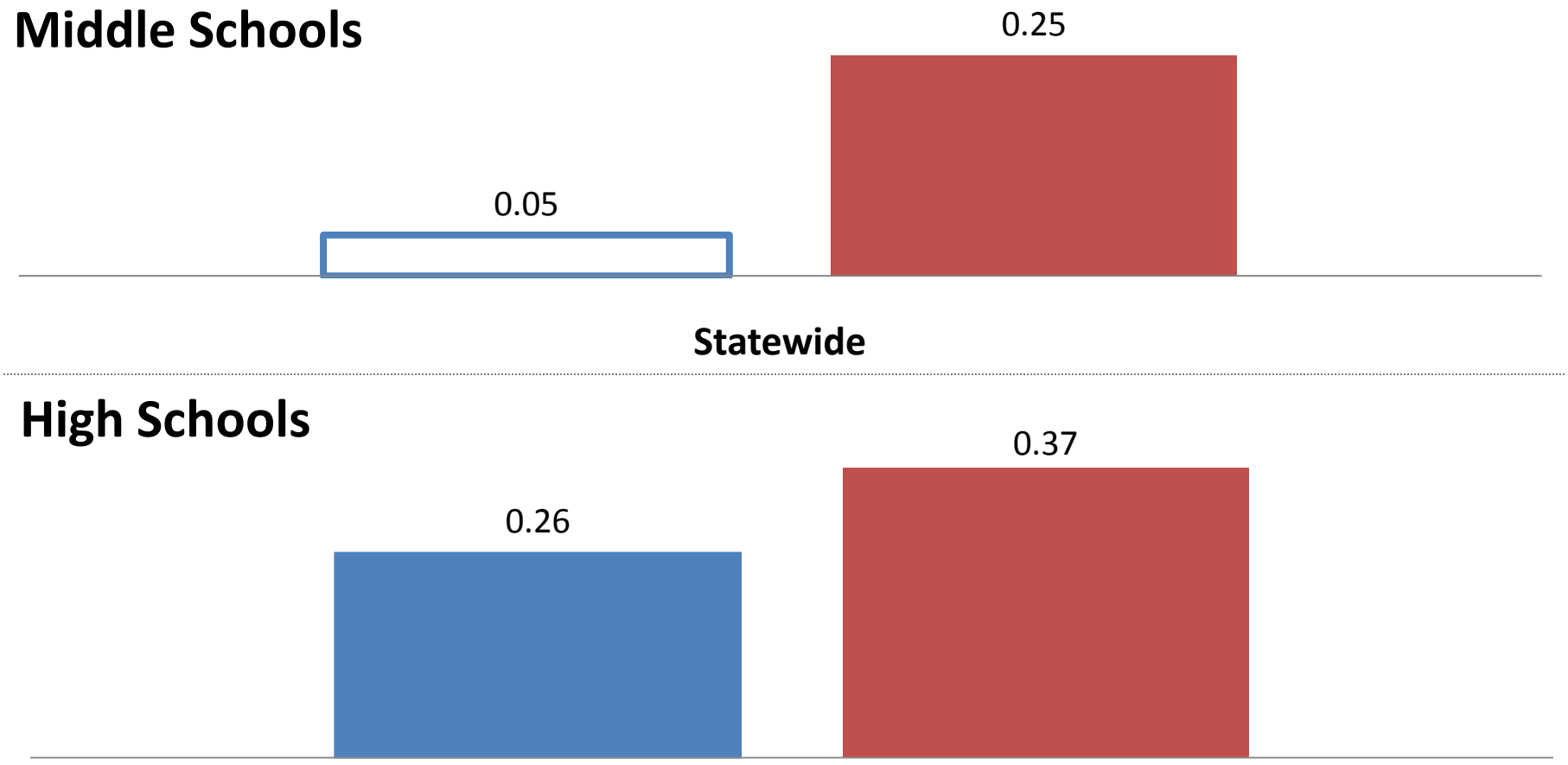
# School Participation

- Lottery Study: oversubscribed middle and high school charters in MA, by urban/nonurban status

| URBAN | NONURBAN |
|---|---|
| **MIDDLE** | **MIDDLE** |
| Academy of the Pacific Rim (Boston) | Cape Cod Lighthouse (Orleans) |
| Boston Preparatory (Boston) | Francis Parker (Devens) |
| Boston Collegiate (Boston) | Four Rivers (Greenfield) |
| Edward Brooke (Boston) | Innovation Academy (Tyngsboro) |
| Excel Academy (Boston) | Marblehead Community (Marblehead) |
| Global Learning (New Bedford) | Pioneer Valley Performing Arts (South Hadley) |
| KIPP Academy (Lynn) | **HIGH** |
| MATCH MS (Boston) | Sturgis (Hyannis) |
| Roxbury Preparatory (Boston) | Four Rivers (Greenfield) |
| **HIGH** | |
| Boston Collegiate (Boston) | |
| Codman Academy (Boston) | |
| City on a Hill (Boston) | |
| MATCH HS (Boston) | |

- Observational Study: all middle and high school grades in charter schools in Massachusetts

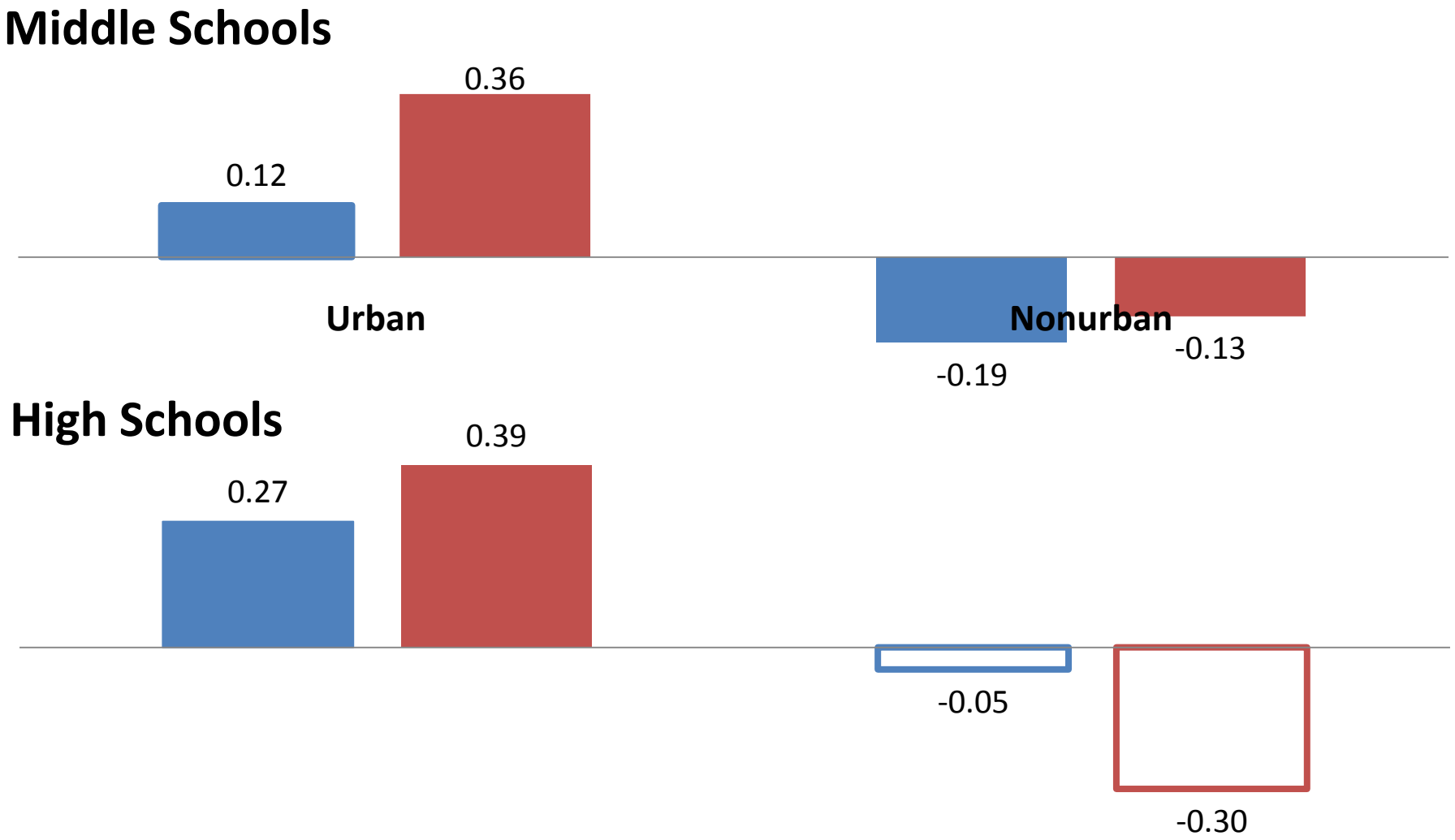
# Lottery Estimates: Statewide




Solid bars show significant estimates (p<.05); open bars show insignificant.

Table 4

# Lottery Estimates: Urban and Nonurban schools




Solid bars show significant estimates (p<.05); open bars show insignificant.

Table 4

# Lottery Estimates for Subgroups: Middle Schools

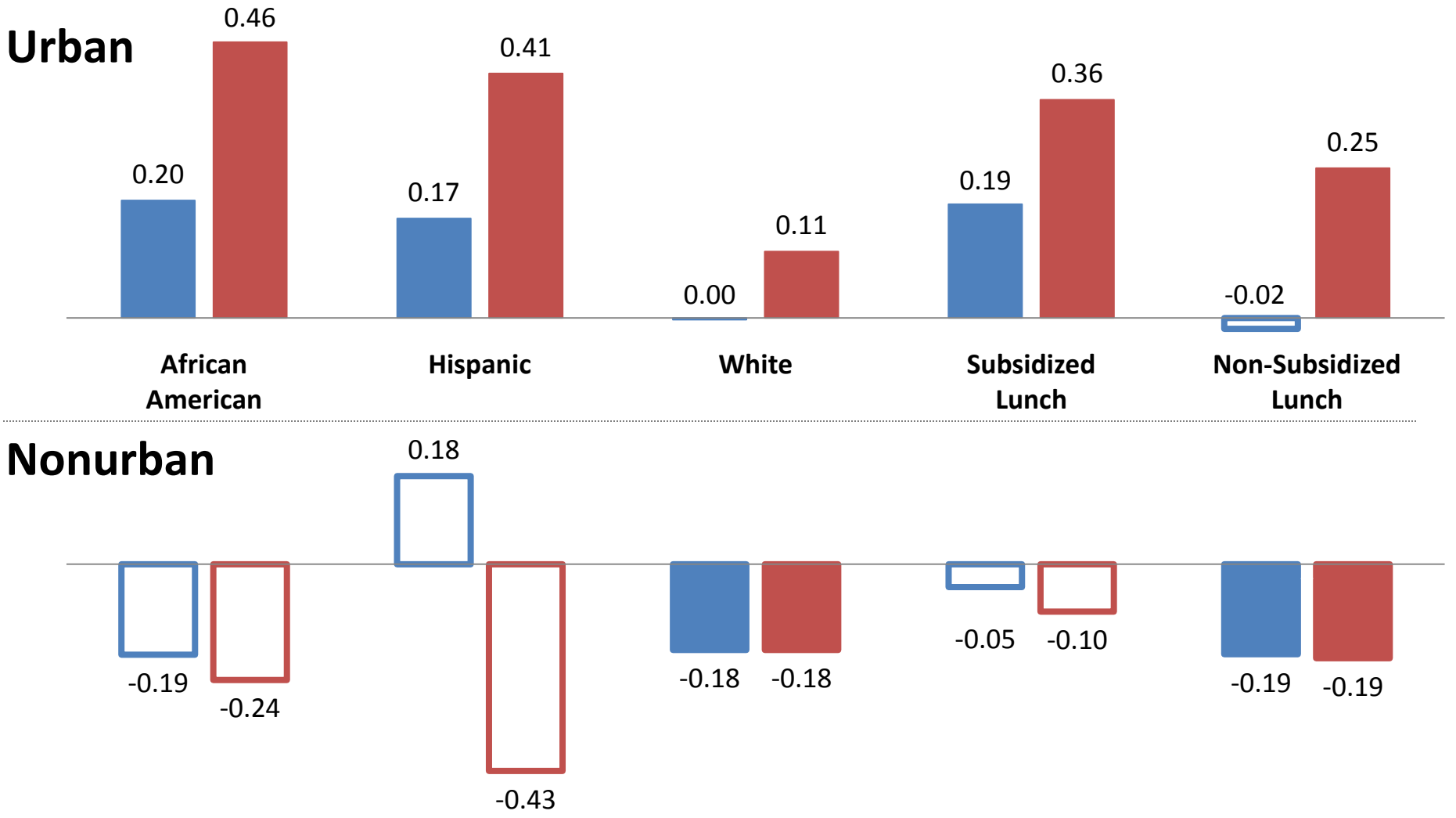



Table 5

# Lottery Estimates for Subgroups: High Schools

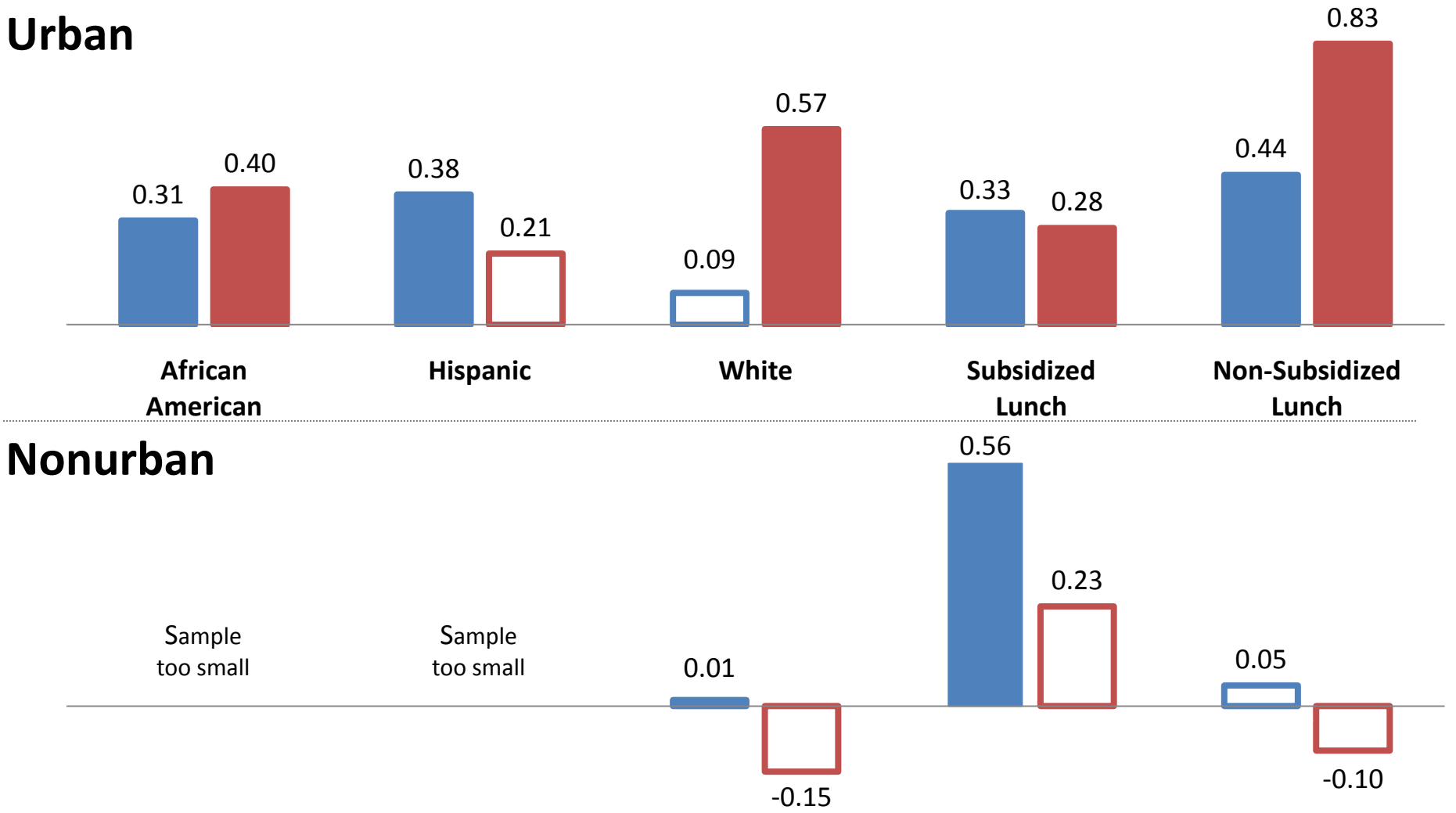



Table 5

# Questions about Lottery Results

- Are lottery winners and losers comparable? Do they leave the sample at the same rate?
  - Little difference between lottery winners and lottery losers for student characteristics or attrition
- Who benefits from time in charter school, weak or strong starters?
  - Effects in urban middle schools are largest for those with low baseline scores (no difference in high school)
- Are the best schools those with the best peers?
  - Among urban middle schools, those with the weakest peers generate the largest gains

Tables 3, A.3, & 6

# Observational Study

- The observational analysis includes all Massachusetts charters enrolling middle and high school students
- Here, we control for student background by including demographics and prior test scores in statistical (regression) models
- Our observational analysis looks separately at schools in the lottery study and other charters, allowing us to say something about differences in impact
- Are oversubscribed charters better?

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# Observational and Lottery Estimates: Middle Schools

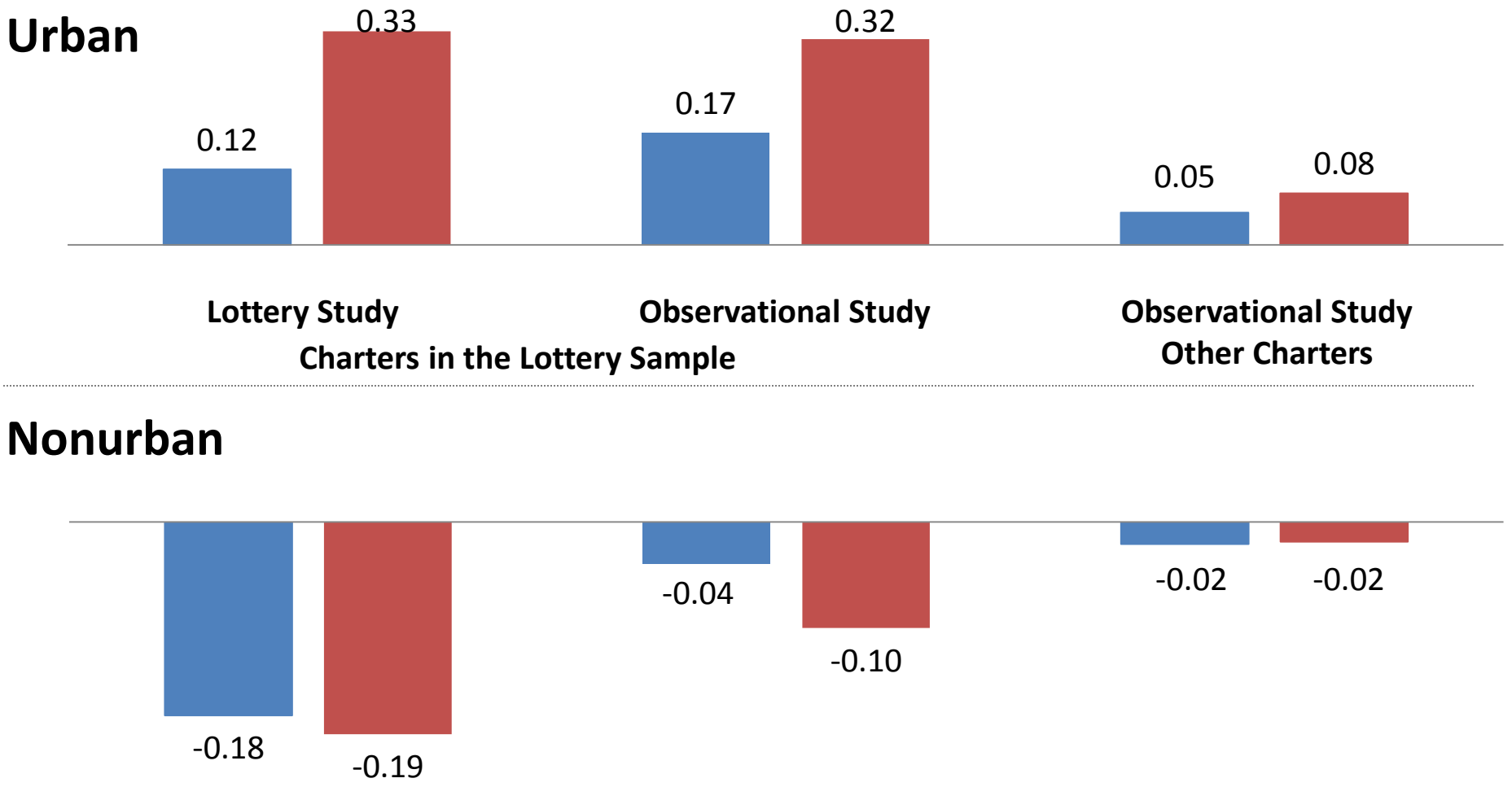


Table 5

# Observational and Lottery Estimates: High Schools

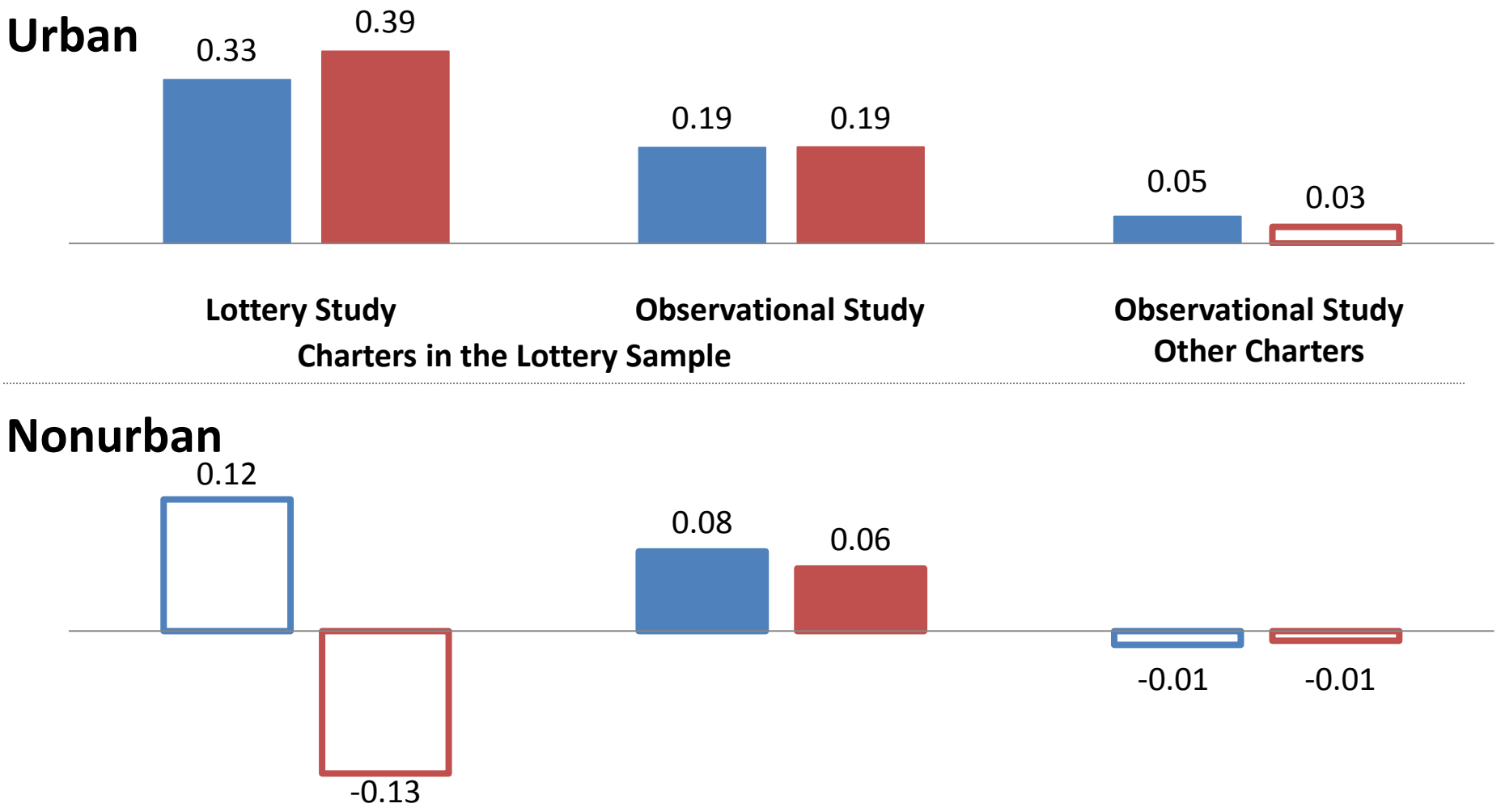


Table 5

# Explaining the Urban Charter Advantage

- Different students
- Different noncharter baseline
- Different school inputs and missions

# Evidence on Differences in School Characteristics

| School Characteristic | Statewide (1) | Urban (2) | Nonurban (3) |
|---|---|---|---|
| **Time in School** | | | |
| Days Per School Year | 186.90 | 190.38 | 180.43 |
| Average Minutes Per Day | 456.00 | 477.77 | 415.57 |
| Have Saturday School | 40.0% | 61.5% | 0.0% |
| Average Minutes of Math Instruction Per Day | 80.88 | 94.92 | 54.79 |
| Average Minutes of Reading/ELA Instruction Per Day | 84.88 | 101.08 | 54.79 |
| **Affiliation and Philosophy** | | | |
| Affiliated with a CMO or Network | 35.0% | 30.8% | 42.9% |
| Identify as "No Excuses" | 40.0% | 61.5% | 0.0% |
| Identify as "No Excuses" or Somewhat "No Excuses" | 50.0% | 76.9% | 0.0% |
| Have a Parent Contract | 77.8% | 100.0% | 42.9% |
| Have a Student Contract | 72.2% | 90.9% | 42.9% |
| Have Uniforms | 80.0% | 92.3% | 57.1% |
| Have a Merit/Demerit Based Reward and Punishment System | 40.0% | 61.5% | 0.0% |

Table 7

# Conclusions

- Statewide results for urban charters are similar to those for Boston and KIPP Lynn
- Similar findings for urban schools emerge in other lottery-based studies:
  - Harlem Children's Zone (Fryer, 2010)
  - An evaluation of 36 charter schools in 15 states found little impact overall, but significant positive effects for urban schools (Gleason, et al., 2010)
- Our large lottery-based impacts for urban charters come from oversubscribed schools with good records; other urban charters have smaller effects

# Finally . . .

- Many possible explanations for urban/nonurban differential, but differences in approach and inputs seem likely to be important
- Lottery and observational assessments of charter effectiveness are an opportunity for the state to formalize "proven provider" status
- Lastly, we venture into policy . . . a standardized and centralized charter lottery process will:
  - ✓ Make proving providers straightforward
  - ✓ Increase student options (like BPS assignment mechanism)